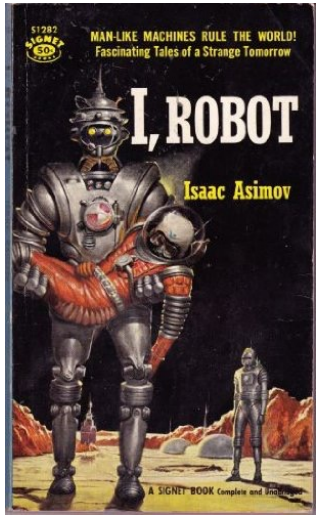
Trustworthy AI for Critical Transportation and Energy Applications

Late Night Thoughts: AI Takes Control?

Bob Ledoux – Program Director

AI is Part of Our Everyday Lives



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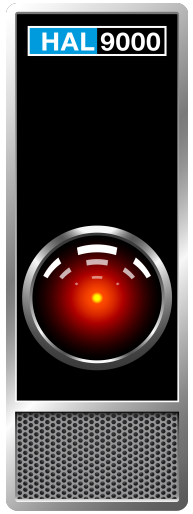

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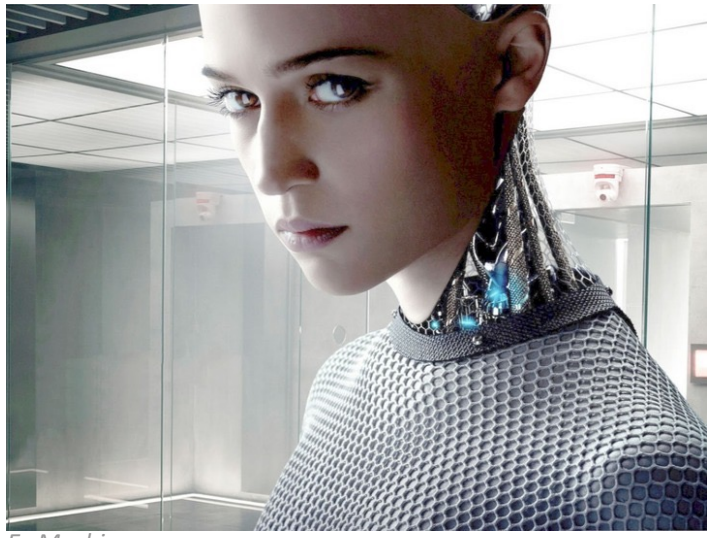
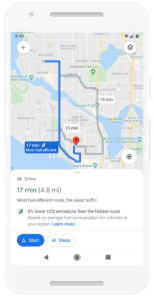
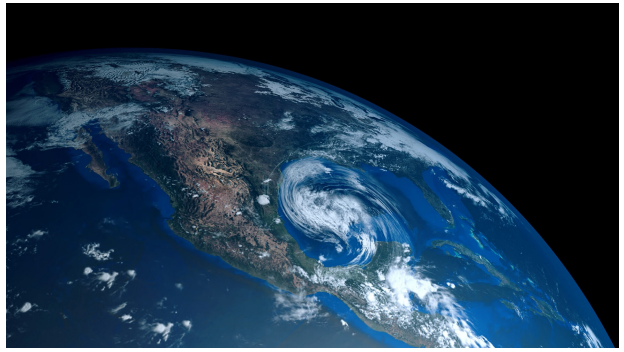
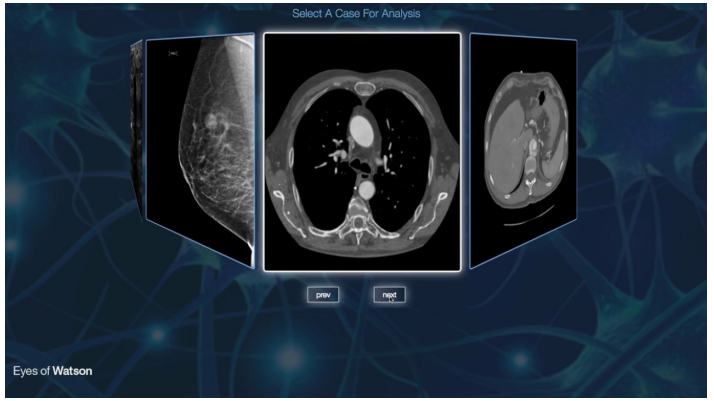


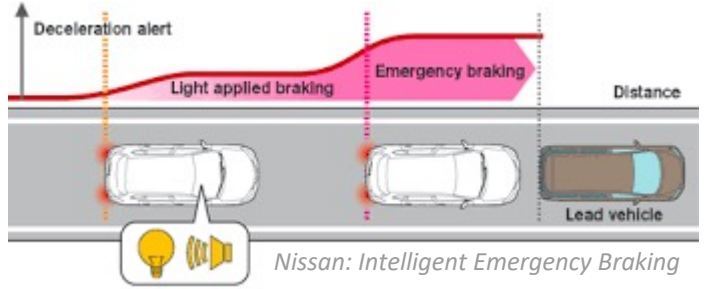
Ex Machina







IBM



Nissan: Intelligent Emergency Braking

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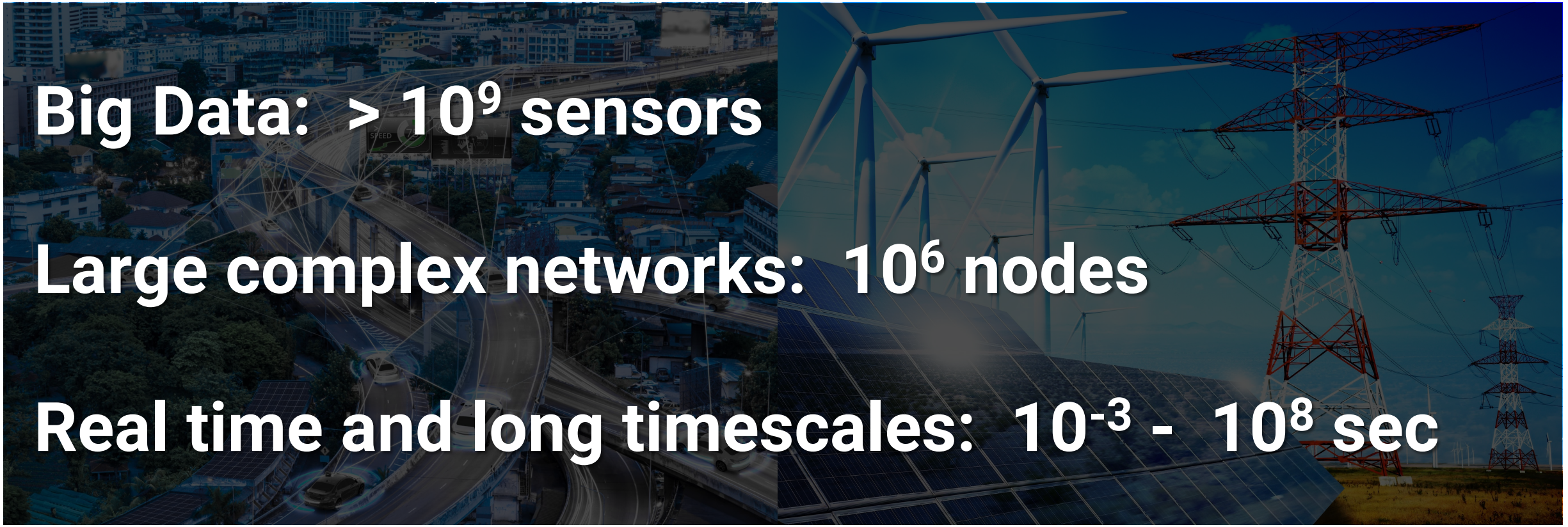
AI in Transportation and Renewable Energy



Welcoming AI With Open Arms?

Nadim Merrikh, Unsplash

Rooftop Balancing Act, 1910. Vintage Photo

Dan Burton, Unsplash

What Does it Mean to “Trust” AI?

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

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What Does it Mean to "Trust" AI?

Fairness, Equity, Privacy

Explainability, Transparency, Accountability

Security, Robustness, Resilience

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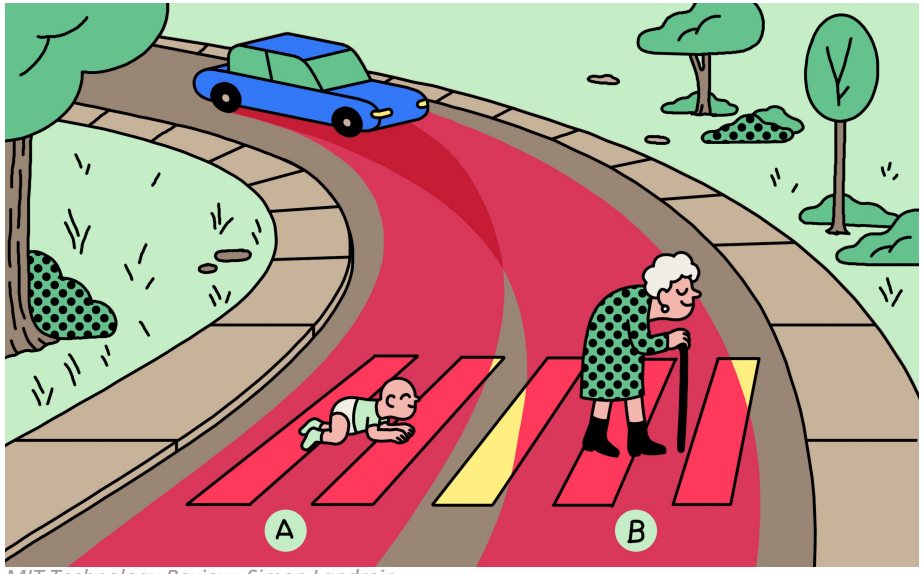
AI Trustworthy Design Decisions - Transportation

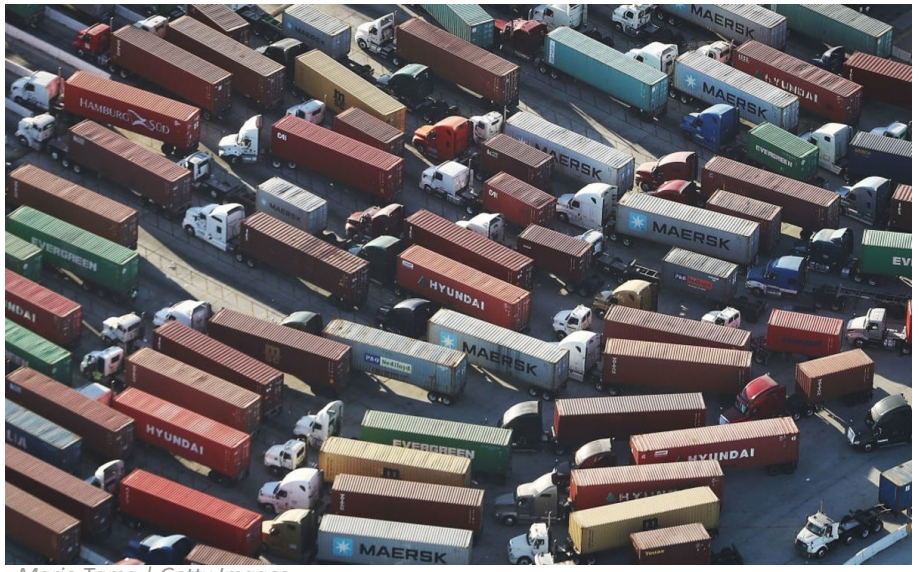
Ethical and explainable
autonomous decision making



MIT Technology Review: Simon Landrein

What level of performance are we willing to sacrifice to ensure decisions are understood?

Safety and resiliency
unexpected situations



Mario Tama | Getty Images

How do we ensure that AI will work as designed despite unforeseen circumstances?

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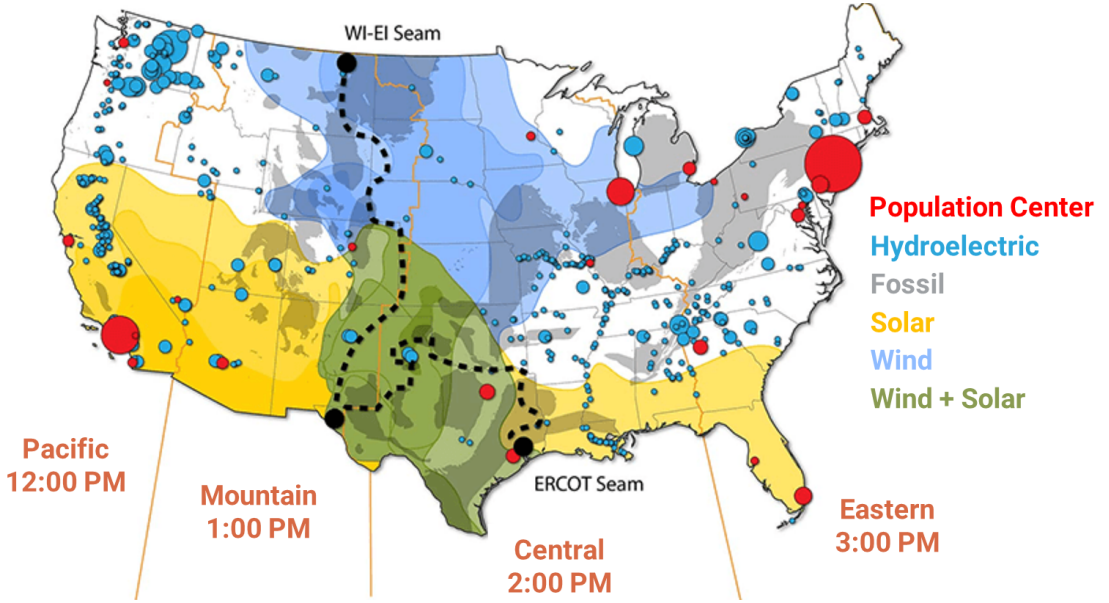
AI Trustworthy Design Decisions – Smart Grid

Private and secure connectivity

Who governs data access and how it will be used? Who is at fault in the event of a breach?

Equitable optimization of local/global trade-offs



Adapted from NREL Interconnections Seams Study (2021)

How do we ensure equity and justice amidst uncertainty? What are the criteria for human intervention?

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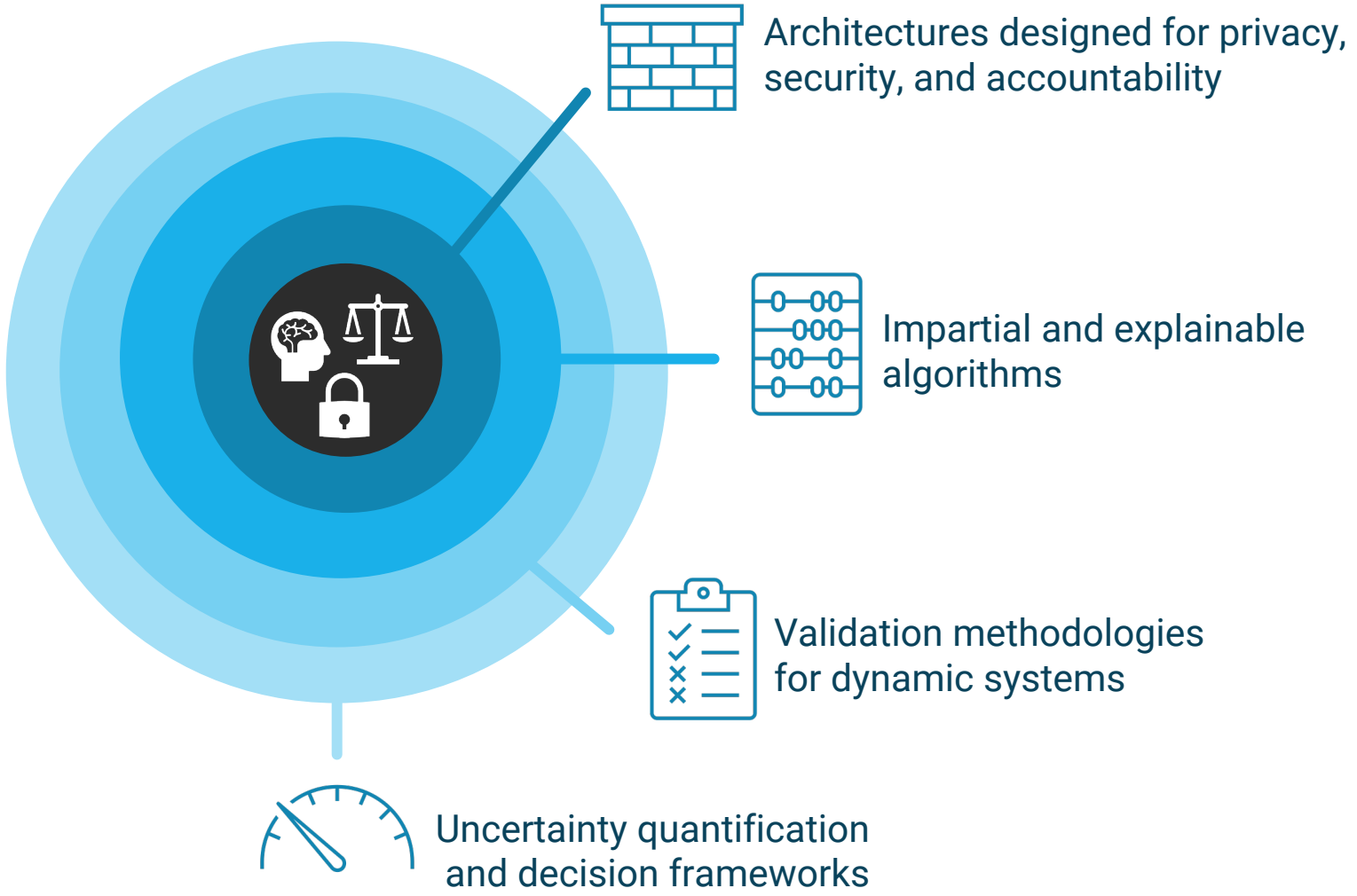
Trustworthy AI Centers on Human Understanding

Trust will not emerge on its own; we need to carry the water on this!

How do we establish trust while building AI systems?

How do we ensure public trust in AI decisions and outcomes?



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Let's Continue the Discussion!

THANK YOU!

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